## List of Contents

#### NUMBER 1

i Softstrip® data strip containing the table of contents for this issue Qin Huang and Henry Charlesworth 1 A FORTRAN-77 program to separate a heterogeneous set of orientations into subsets Todd Dunn 9 MZAF: a BASIC program for off-line correction of electron microprobe data by the ZAF method R. J. Bodnar, S. M. Sterner, 19 SALTY: a FORTRAN program to calculate composiand D. L. Hall tions of fluid inclusions in the system NaCl-KCl-H2O Walter L. Pilant 43 A PC-interactive stereonet plotting program Di Zhou 59 ROPCA: a FORTRAN program for robust principal components analysis Barbara Ann Eckstein 79 Evaluation of spline and weighted average interpolation algorithms Robert V. Demicco 95 MAPS—a BASIC program to model accumulation of and Ronald J. Spencer platform sediments Stephen J. Balch 107 An efficient algorithm for polynomial surface fitting and Garth T. Thompson Malcolm Reeves 121 MINID—a BASIC program to assist in the optical identification of minerals in thin section V. Hurai 135 BASIC program for interpretation of microthermometric data from H<sub>2</sub>O and H<sub>2</sub>O-NaCl fluid inclusions Neil A. Wells 143 A program in BASIC for facies-by-facies Markov chain analysis R. L. M. Vissers and B. Bollegraaf

#### **NUMBER 2**

157 An algorithm for rotation of axial data

### SPECIAL ISSUE

### FRACTALS AND THE GEOSCIENCES

David Unwin	163	Fractals and the geosciences: Introduction
Paul A. Longley and Michael Batty	167	Fractal measurement and line generalization
W. Brian Whalley and Julian D. Orford	185	The use of fractals and pseudofractals in the analysis of two-dimensional outlines: review and further exploration
Janette Hayward, Julian D. Orford, and W. Brian Whalley	199	Three implementations of fractal analysis of particle outlines
Joanne K. Elliot	209	An investigation of the change in surface roughness through time on the foreland of Austre Okstindbreen, North Norway

219 The characterization of regular/irregular surfaces in W. E. H. Culling the soil-covered landscape by Gaussian random fields J. G. Jones, R. W. Thomas, 227 Fractal properties of computer-generated and natural and P. G. Earwicker geophysical data Softstrip® data strip containing the table of contents for this issue **NUMBER 3** i Softstrip® data strip containing the table of contents for this issue Sandra Simigian and John Starkey IMAGE: modified for use on a microcomputer-based 237 system 255 HYDROLAB®: an example of a new generation of Patrice Poyet and Michel Detay compact expert systems **David Shelley** 269 CALCSTRESS: a program that calculates compression and tension directions from calcite U-stage data 275 ORIENT: an interactive FORTRAN 77 program for Henry Charlesworth, David Cruden, John Ramsden, and Qin Huang processing orientations on a microcomputer Peter F. Fisher and 295 STAX: a Turbo Prolog rule-based system for Soil Chandra S. Balachandran Taxonomy Clayton Deutsch 325 DECLUS: a FORTRAN 77 program for determining optimum spatial declustering weights P. Wessel 333 XOVER: a cross-over error detector for track data Raymond Niederkorn and 347 FUSION: a computer simulation of melting in the Philippe Blumenfeld quartz-albite-anorthite-orthoclase system G. W. Dagger 371 DRIFTMAP—a continental drift program in Pascal Nikos A. Lorentzos and 395 The handling of depth and time intervals in Vassiliki J. Kollias soil-information systems Alberto Colombi RSPACE: a set of programs to define completely the reaction space of J. B. Thompson, Jr. B. Allard and K. Benn 441 Shape Preferred-Orientation analysis using digitized images on a microcomputer **NUMBER 4** 

## SPECIAL ISSUE

# STATISTICAL METHODS FOR RESOURCE APPRAISAL

Editorial	v	
Marco Ligi and Giovanni Bortoluzzi	449	DATUM: a FORTRAN 77 computer program for datum shift and conversion of geographical coordinates between different cartographic systems
Marco Ligi and Giovanni Bortoluzzi	519	PLOTMAP: geophysical and geological applications of good standard quality cartographic software

H. Burger, C. Kirsch, and W. Skala 587 The application of microcomputers in exploration and exploitation of mineral deposits Hans Wackernagel Description of a computer program for analyzing multivariate spatially distributed data F. P. Agterberg 599 LOGDIA—FORTRAN 77 program for regression with diagnostics 615 FORTRAN 77 program for Poisson regression Chang-Jo F. Chung Chang-Jo F. Chung 625 FORTRAN 77 program for constructing and plotting confidence bands for the distribution and quantile functions for truncated data 645 FORTRAN 77 program for constructing and plotting Chang-Jo F. Chung confidence bands for the distribution and quantile functions for randomly censored data I Softstrip® data strip containing the table of contents for this issue

#### **NUMBER 5**

	i	Softstrip® data strip containing the table of contents for this issue
Claude Duguay, Glenn Holder, Ellsworth LeDrew, Philip Howarth, and Douglas Dudycha	669	A software package for integrating digital elevation models into the digital analysis of remote-sensing data
A. W. Warrick	679	An algorithm for steady infiltration from lines and points
V. U. Nguyen	695	A FORTRAN program for modeling methane gas desorption from coal
Sorab Panday and M. Yavuz Corapcioglu	709	A FORTRAN microcomputer program for heat and mass transfer in frozen soils
J. D. M. Roberts, R. M. Belchamber, T. Lilley, D. Betteridge I. Bishop, and P. Styles	727	An evaluation of computerized tomography for near- surface geophysical exploration
Samuel P. Figuli	739	FSM: a Monte Carlo simulation model of landform evolution as the result of fault activity
B. Vrielynck and A. Granlund	789	GENETAB: a BASIC program for editing stratigraphic range charts
Steven E. Franklin	799	Ancillary data input to satellite remote sensing of complex terrain phenomena
Wm. R. Riedel	809	IDENTIFY: a Prolog program to help identify fossils
Ralph A. Haugerud	825	On numerical modeling of one-dimensional geothermal histories
Short Note		
Robert G. Clark	837	REFORMATTER: a raster data-partition program

## **NUMBER 6**

		IVENIBLE U
	i	Softstrip® data strip containing the table of contents for this issue
P. F. M. van Gaans	843	WATEQX—a restructured, generalized, and extended FORTRAN 77 computer code and database format for the WATEQ aqueous chemical model for element speciation and mineral saturation, for use on personal computers or mainframes
Marcello Ciminale and Mariano Loddo	889	A computer program to perform the upward continuation of potential field data between arbitrary surfaces
C. R. Stanley and J. K. Russell	905	PEARCE.PLOT: a Turbo-Pascal program for the analysis of rock compositions with Pearce element ratio diagrams
Qin Huang and Jacques Angelier	927	CONJUG: a FORTRAN-77 program for reconstructing the principal paleostress axes associated with a set of conjugate fault slip data
P. H. A. Sneath and C. D. Langham	939	OUTLIER: a BASIC program for detecting outlying members of multivariate clusters based on presence-absence data
K. J. Vines	965	EDNHAZ: a program for analyzing step drawdown tests
Short Notes H. V. Ram Babu, D. Atchuta Rao, D. Ch. Venkata Raju, and V. Vijay Kumar	979	MAGTRAN: a computer program for the transforma- tion of magnetic and gravity anomalies
R. Ramón-Lluch, L. M. Martínez-Torres, and L. Eguiluz	989	RAFOLD: a BASIC program for the geometric classifi- cation of folds
Nicholas M. S. Rock and Michael R. Wheatley	997	Some experiences with integrating the use of main- frames and micros
F. Alejandro Nava	1003	TurboBasic complex number operations
H. Charles Romesburg	1011	ZORRO: a randomization test for spatial pattern
F. Alabert and J. L. Mallet	1019	A local grid updating scheme for interpolation
Reviews	1025	
Software Reviews	1027	
	1030	
Letters to the Editor	1031	
	Trily	NUMBER 7
		Softstrin® data strip containing the table of contents

		NUMBER 7
	- 1	Softstrip® data strip containing the table of contents for this issue
Dennis Engi	1037	A spherical-stochastic methodology for microseismic event location
Lorenza Saracco and Franco D'Amore	1053	CO2B: a computer program for applying a gas geothermometer to geothermal systems

M. O. Onyekonwu	1067	Program for designing pressure transient tests
M. M. Kimberley	1089	Fitting a logarithmic spiral to the shoreline of a headland-bay beach
John M. Zerzan	1109	OVERLAP: a FORTRAN program for rapidly evaluating the area of overlap between two polygons
K. J. S. Sawhney and G. S. Lodha	1115	GEOXRF: quantitative analysis program for energy dispersive X-ray fluorescence analysis
K. Benn and D. Mainprice	1127	An interactive program for determination of plagio- clase crystal axes orientations from U-Stage measure- ments: an aid for petrofabric studies
Short Notes M. Owen	1143	The rotation and manipulation of crossbedding data using KNOWLEDGEMAN, a commercial micro-computer database package
I. V. Radhakrishna Murthy and S. Jagannadha Rao	1149	A FORTRAN 77 program for inverting gravity anomalies of two-dimensional basement structures
Marijan Herak	1157	HYPOSEARCH—an earthquake location program
Michael P. Morassutti	1163	CLOUD: a computer program to calculate the frac- tional cover and optical depth of high-level, middle- level, low-level, and convective cloud
LaVerne M. Friberg	1169	Garnet stoichiometry program using a Lotus 1-2-3 spreadsheet
Graham J. Sherwood	1173	MATZIJ—a BASIC program to determine paleomagnetic remanence directions using principal component analysis
C. F. Hoffmann and Z. Roksandic	1183	Stable isotopes—correction and normalization of delta values obtained on a mass spectrometer
G. W. Quick	1193	XRDPLOT: a microcomputer program for the tabulation and plotting of X-ray powder diffraction reference data on dot-matrix printers
Reviews	1199	

# NUMBER 8

i Softstrip® data strip containing the table of content for this issue
1203 MAPWD: an interactive mapping tool for accessing geo-referenced data sets
1221 EQQYAC: program for determining geotherma reservoir chemical equilibrium
1241 NORMOD: a program for modal norm calculation and evaluation of other component transformations
1249 Gray-scale maps with a personal computer
1265 Two FORTRAN 77 function subprograms to calculate gravity anomalies of bodies of finite and infinite strike length with the density contrast differing with depth

John Strobel, Robert Cannon, Christopher G. St. C. Kendall, Gautam Biswas, and James Bezdek	1279	Interactive (SEDPAK) simulation of clastic and carbonate sediments in shelf to basin settings
S. P. Dunstan and A. J. B. Mill	1291	Spatial indexing of geological models using linear octrees
Cheng Ho and John Marra	1303	A numerical routine for the seasonal evolution of open-ocean water column temperature for use in biogeochemical studies
Arnaud Pecher	1315	SCHMIDTMAC—a program to display and analyze directional data
Short Notes		
Colin Ware	1327	Fast hill shading with cast shadows
R. Marschallinger	1335	COUNT: a BASIC program supporting effective point- counting